- 1. Apparatus for measuring the uv fluence in a space comprising a spherical containment vessel having a transmissively passive spherical wall containing an actinometric fluid therewithin that is optically opaque at a known wavelength.
- 5 2. An apparatus as defined in claim 1 wherein said actinometric solution comprises a an aqueous solution of 0.6 *M* iodide and 0.1 *M* iodate in 0.01 *M* borate at pH 9.25.
  - 3. An apparatus as defined in claim 1 wherein said actinometric solution is an aqueous mixture of iodide and iodate that is optically opaque at 254 nm but insensitive to radiation above 330 nm.
  - 4. Apparatus as defined in claim 1 wherein said spherical containment vessel is made from quartz.
  - 5. Apparatus as defined in claim 1 wherein said spherical containment vessel has a volume of less than about 1 cubic centimeter.
  - 6. Apparatus as defined in claim 1 wherein said actinometric solution comprises a an aqueous solution having a molar concentration of iodide and iodate of about 3:5 and a ph of about 9.25.
  - 7. An apparatus as defined in claim 1 comprising a colorimeter operatively configured to measure absorbance of light passing through said spherical actinometer for a determination of UV fluence.
- 20 8. Apparatus as defined in claim 7 further comprising a plurality of said spherical actionometers dispersed within a volume for determination of uv fluence within the volume.
  - 9. Apparatus as defined in claim 1 wherein said actinometer has neutral buoyancy relative to water for dispersion in a volume of water for measuring fluence throughout the volume.

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10. A method of determining UV fluence in a space comprising the steps of preparing a plurality of spherical actimometers containing an actinometric solution therein which is optically opaque at a given wavelength; dispersing said actinometers through out said volume for a known period of time, measuring the change in transmissiveness of the actinometer, and calculating the fluence using the relation fluence (mJ per cm<sup>2</sup>.) =  $\Delta$  Abs (470 nm) x K x 0.6 ml/cm<sup>2</sup> where K is a constant for the given wavelength.

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